Attorney Docket No.

FSUN-001/01US

PATENT

dereby certify that this correspondence is being deposited with the United States Postal Service with fficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 450, Alexandria, VA 22313-1450 on April 26, 2004.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Chase, et al.

Serial No.:

10/688,078

Examiner:

not assigned

Confirmation No.: 8210

Art Unit:

1636

Filed:

17 October 2003

For:

BIOMOLECULAR-BASED ACTUATOR

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT TRANSMITTAL

Enclosed is an Information Disclosure Statement and accompanying Form PTO/SB/08A for the above-identified patent application.

[X]	In accordance with 37 C.F.R. §1.97(b), no additional fee for submission of the IDS is required.			
[]	In accordance with 37 C.F.R. §1.97(c), also enclosed is:			
	[] the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p); or			
	[] a statement as specified in 37 C.F.R. §1.97(e).			
[]	In accordance with 37 C.F.R. §1.97(d), a statement as specified in 37 C.F.R. § 1.97(e) and the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p) are also enclosed.			
[]	Check No in the amount of \$ for the total fee is attached.			
ſΧΊ	A return receipt postcard is also enclosed			

Attorney Docket No. FSUN-001/01US Serial No. 10/688,078 Page 2

[] Please charge \$___ to Deposit Account No. 03-3117 for the total fee. This paper is being submitted in duplicate.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 03-3117.

Dated: April 26, 2004

Respectfully submitted, COOLEY GODWARD LLP

Cooley Godward LLP ATTN: Patent Group Five Palo Alto Square 3000 El Camino Real

Palo Alto, CA 94306-2155

Tel: (650) 843-5000 Fax: (650) 857-0663 By:

Karen E. Flick Reg. No. 44,111

(8	E	JC	6
0	3	'en	ARY DES U.
1			
N.	TEN	П.В.Д	

ubstitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

	(use as many si	neers as	necessary)
Sheet	1	of	3

	Complete if Known					
Application Number	10/688,078					
Filing Date	17 October 2003					
First Named Inventor	P. Bryant Chase					
Group Art Unit	1636					
Examiner Name	Not assigned					
Attorney Docket Number	FSUN-001/01US					

	U.S. PATENT DOCUMENTS					
_		U.S. Patent Document			Date of Publication of Cited	
Examiner Initials*	Cite No. ¹	Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Document MM-DD-YYYY	
-	P1	2002/0068295	Al	MADOU et al	06-06-2002	
	ļ					
	1					
	<u> </u>				,	
		-				
					·	
					*	

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.1		Foreign Patent Doo	cument	Nimo of Branch and Ameliana of Giral	Date of Publication	
	No.	Office ³	Number⁴	Kind Code ⁵ (if known)	Name of Patentee or Applicant of Cited Document	of Cited Document MM-DD-YYYY	T ⁶
	FI	wo	00/22101	A2	Cornell Research Foundation, Inc.	04-20-2000	
	F2	wo	02/12896	Al	Aviva Biosciences Corp.	02-14-2002	
	F3	wo	01/44302	A2	Zeppezauer, et al.	06-21-2001	Ger.
	F4	wo	02/06789	A2	Ohio State University Research Foundation and Univ. Kentucky Research Foundation	01-24-2002	
							+
			•				

Examiner Date Signature Considered				
Signature Considered	Examiner	<u>-</u>	Date	
	Signature		Considered	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.

³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Skind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

⁶ Applicant is to place a check mark here if English language Translation is attached.

0 1 1 1 C 1 1 1 1 D D T T O				Complete if Known			
Substitute for form 1449B/PTO)	Application Number	10/688,078		
				Filing Date	17 October 2003		
INFO	DRMATIO	II NI	SCLOSURE	First Named Inventor	P. Bryant Chase		
STATEMENT BY APPLICANT		Group Art Unit	1636				
(1	use as many sl	heets as	necessary)	Examiner Name	Not assigned		
Sheet	2	of	3	Attorney Docket Number	FSUN-001/01US		

Examiner	Cite	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book,	T ²
initials*	No.1	magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Ľ
	DI	BUNK, et al., Actomyosin motility on nanostructured surfaces. Biochem. Biophys. Res. Commun. 301:783-788 (2003)	
	D2	CHAEN, et al., Lower activation energy for sliding of F-actin on a less thermostable isoform of carp myosin, J Biochem (Tokyo) 120:788-791. (1996).	
	D3	CHASE, et al. Viscosity and solute dependence of F-actin translocation by rabbit skeletal heavy meromyosin. Am J Physiol Cell Physiol 278:C1088-C1098 (2000)	
	D4	CHOMCZYNSKI et al., Single-step method of RNA isolation by acid guanidinium thiocyanate-phenol-chloroform extraction. Anal. Biochem. 162:156-9 (1987)	
	D5	DONG, et al., Kinetic studies of calcium binding to the regulatory site of troponin C from cardiac muscle. J. Biol. Chem. 271:688-94 (1996).	
	D6	GORDON, et al. Calcium regulation of skeletal muscle thin filament motility in vitro. <i>Biophys. J.</i> 72:1295-1307 (1997)	
	D7	HARADA, et al., Mechanochemical coupling in actomyosin energy transduction studied by in vitro movement assay, J. Mol. Biol. 216:49-68 (1990)	
	D8	HESS et al., Molecular shuttles based on motor proteins: active transport in synthetic environments, J. Biotechnol. 82:67-85 (2001)	
	D9	HESS, et al, Light-Controlled Molecular Shuttles Made from Motor Proteins Carrying Cargo on Engineered Surfaces Nano Lett. 1:235-239 (2001)	
	D10	HOMSHER et al., Calcium regulation of thin filament movement in an in vitro motility assay. <i>Biophys. J.</i> 70:1881-1892 (1996)	
	D11	HUXLEY, Sliding filaments and molecular motile systems, J. Biol. Chem. 265:8347-8350 (1990)	
	D12	KÖHLER, et al., Familial hypertrophic cardiomyopathy mutations in troponin 1 (K183D, G203S, K206Q) enhance filament sliding. <i>Physiological Genomics</i> 14:117-128 (2003);	
	D13	KRON, et al., Assays for actin sliding movement over myosin-coated surfaces. <i>Methods Enzymol.</i> 196:399-416 (1991)	
	D14	KUNIOKA, et al., Innocuous labeling of the subfragment-2 region of skeletal muscle heavy meromyosin with a fluorescent polyacrylamide nanobead and visualization of individual heavy meromyosin molecules. <i>J Biochem (Tokyo)</i> 119:1024-32 (1996).	

				
Sub	criture for f	orm 1449B/PTO		Complete if Known
Sub	Stitute for i	01111 1449B/F 10	Application Number	10/688,078
IN	TODM	ATION DISCLOSURE	Filing Date	17 October 2003
			First Named Inventor	P. Bryant Chase
SI	ATEM	ENT BY APPLICANT	Group Art Unit	Not assigned
	(use as i	nany sheets as necessary)	Examiner Name	Not assigned
Sheet	3	of 3	Attorney Docket Number	FSUN-001/01US
			ART – NON PATENT LITER	
	D15	85:1775-1786 (2003)		nent sliding: role of cross-bridge number. Biophys. J.
	D16	LIMBERIS, et al., Polarized Aligna Nano Lett. 1:277-280 (2001)	ment and Surface Immobilization	n of Microtubules for Kinesin-Powered Nanodevices,
	D17	MARGOSSIAN et al., Preparation 85(Pt B): 55-71 (1982)	of Myosin and its Subfragmen	ats from Rabbit Skeletal Muscle. Methods Enzymol.
	D18	NICOLAU, et al. Actin motion on r 1134 (1999)	nicrolithographically functionali	zed myosin surfaces and tracks. Biophys. J., 77:1126-
	D19	NIELSCH, et al., Hexagonally order	red 100 nm period nickel nanwire	e arrays, Appl Phys Lett 79:1360-1362 (2001)
	D20	POTTER, Preparation of troponin ar	nd its subunits. Methods Enzymo	ol. 85:241-263 (1982)
·	D21	SCHMIDT, et al., Force Tolerance of	of Hybrid Nanodevices, Nano Le	tt. 2:1229-1233 (2002)
	D22	SELLERS and KACHAR, Polarity a Science 249:406-408 (1990)	and velocity of sliding filaments:	control of direction by actin and of speed by myosin,
	D23	SIDELL, et al., The eurythermal my fluctuating thermal environment, J C		mummichog (Fundulus heteroclitus): adaptation to a
	D24	SOONG, et al., Powering an inorgan	ic nanodevice with a biomolecul	lar motor, Science 290:1555-1558 (2000)
	D25	SUZUKI, et al., Control of actin m 2001 (1997)	oving trajectory by patterned po	oly(methylmethacrylate) tracks. Biophys. J. 72:1997-
	D26	TOYOSHIMA, et al., Bidirections (1989)	al movement of actin filaments	along tracks of myosin heads, Nature 341:154-156

Examiner	Date
Signature	Considered

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Unique citation designation number.
 Applicant is to place a check mark here if English language Translation attached.